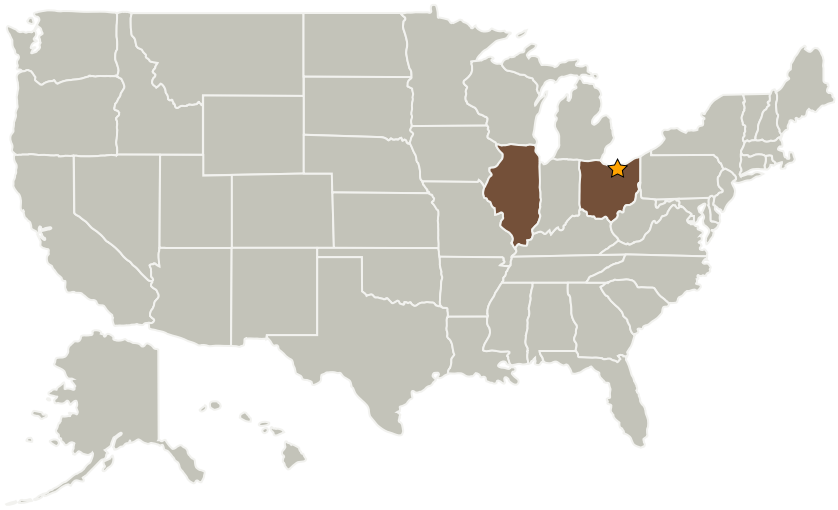
Lightweight InP Solar Cells for Space Applications, Phase II

Completed Technology Project (2009 - 2011)

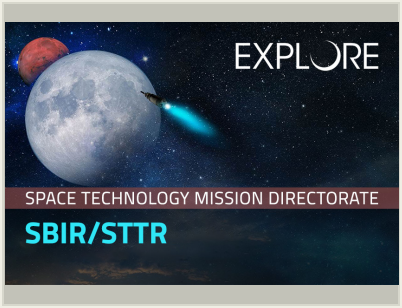
Project Introduction

The innovation in this Phase II SBIR is the development of a technology which will enable the manufacture of a lightweight, low cost, high radiation resistance InP based solar cells with high efficiency suitable for space power systems. The key technological step is the application of a production-worthy epitaxial liftoff (ELO) process to a multijunction solar cell structure fabricated on a large area (3-inch and 4-inch)InP substrates. Our focus will be on the improvement of the efficiency of dual junction to greater than 23% and a pathway towards InP based triple junction. The number of substrate reusage will also be investigated to determine the impact of cost savings due to the high cost of InP substrates. Radiation testing of the ELO InP solar cells will be performed and compared to standard InP solar cells.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
MicroLink Devices, Inc.	Supporting Organization	Industry Minority-Owned Business	Niles, Illinois



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
Illinois	Ohio

Project Transitions

February 2009: Project Start

February 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.1 Power Generation and Energy Conversion
    - TX03.1.1 Photovoltaic